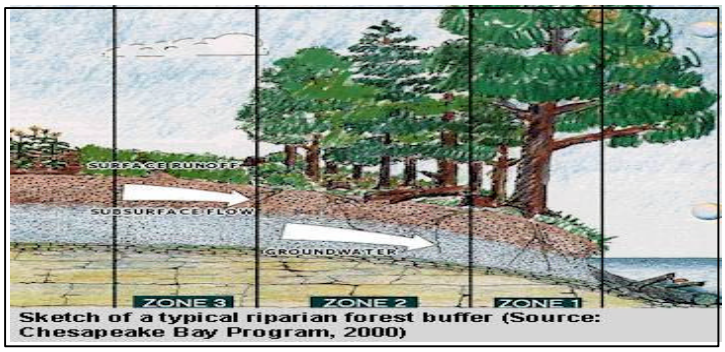
Floodplain Management: Greenfield Approach

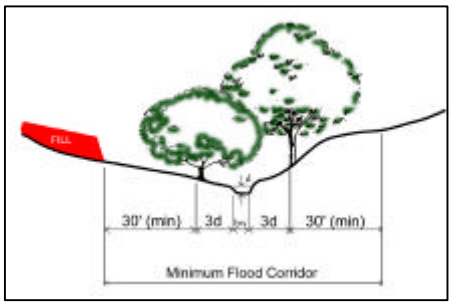


Sketch of a typical riparian forest buffer (Source: Chesapeake Bay Program, 2000)

Description

The Greenfield Approach uses stream buffers to reduce flood risks by preserving the floodplain storage along the stream corridor. Stream buffers are areas along a stream where development is restricted or prohibited. Buffers can be engineered to provide maximum water quality benefits, by planting with native grasses and vegetation or left in their natural state. To maximize the benefits of stream buffers, the buffer width should be a minimum of 100 feet on each side of the stream or more. Providing buffers along streams and around wetlands in upper portions of the watershed will provide natural flood control and water quality benefits downstream.

Lincoln currently requires a "minimum flood corridor" buffer to be preserved along only those drainage ways outside the mapped floodplain that drain greater than 150 acres. Thus, smaller tributaries draining less than 150 acres, or larger streams that have a mapped floodplain require no buffer protection. The formula to determine buffer width where it applies is the channel bottom width + 60 feet + 6 times the channel depth. Thus, a 6 feet wide, 3 feet deep channel would require an 84 foot flood corridor, or a 42 foot buffer on each side of the stream.



Advantages

- Provides effective flood control by preserving floodplain storage volume.
- Increases adjacent property values.
- Preserves wildlife and terrestrial habitat.
- Provides open space for passive recreation, water features, and other storm water management activities.
- Improves water quality by filtering stormwater runoff from adjacent properties.
- Removes areas of impervious cover from areas adjacent to streams. This helps to distribute peak flows and decreases flooding frequency downstream.
- Provides a stream “right of way” which allows for lateral movement of the stream bed to dissipate energy and velocities.

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	★ Protects the stream bank from erosion by maintaining the natural vegetation. ★ Can reduce watershed imperviousness by 5 percent, which reduces runoff volumes and peak flow rates. ★ Mitigates stream warming by preserving the shade provided by the riparian buffer, which supports aquatic habitats. ★ Proactive approach to reduce future flooding costs. ★ Increases the protection to adjacent properties.
Disadvantages	☹ Increases cost to developers by reducing developable land. ☹ Not applicable to developed areas and re-development. ☹ Requires planning and stakeholder "buy-in".
Implementation Considerations	■ May require adjustment in zoning ordinance ■ Public Outreach Program ■ Both mandatory and voluntary approaches can be used ■ Provide incentives for developers to preserve floodplains such as allowing higher density development (see Cluster Development Fact Sheet) ■ Decide which stream reaches will be regulated and to what degree ■ Determine appropriate buffer width to provide desired flood protection and water quality benefits ■ Increase flexibility by allowing riparian banking or buffer averaging.
Example Communities	■ Lenexa, Kansas ■ Johnson County, Kansas ■ Arnold, Missouri ■ Fort Collins, Colorado
References	No Adverse Impact Status Report: Helping Communities Implement NAI, June 2002, Association of State Flood Plain Managers Post Construction Storm Water Management in New Development & Redevelopment – Buffer Zones, January 2002,USEPA. Stream Protection Guidelines, Draft Report, July 2001, Johnson County, Kansas.